Claims

1. A processing means (100) for pipelined processing of data packets (125), said processing means comprising an input (105), an output (115) and a pipeline (110) comprising at least one processing stage (120), said pipeline being connected between the input and the output, said processing means being **characterised** in that

said pipeline comprises at least one access point (200) providing access to a device (205);

said device is connected to said access point via a request channel (210, 255);

said request channel comprises a transmit connection (210) for transmitting requests (400) to said device and a receive connection (255) for receiving responses (405) from said device;

said access point comprises at least one FIFO store (245, 250) for storing data entering the access point;

said access point further comprises a response FIFO store (260) connected to said device via said receive connection, said response FIFO store for storing responses received on the receive connection; and

said access point further comprises a synchronisation mechanism (263) adapted to synchronise the fetching of the first entry in said at least one FIFO store and the first entry in said response FIFO store.

2. The processing means (100) of claim 2, wherein

said access point (200) provides simultaneous access to more than one device (205) via more than one request channels.

3. The processing means (100) of claim 2, wherein

the receive connections (255) of said request channels are connected to different response FIFO stores (260).

4. The processing means (100) of any one of the above claims, wherein

said access point further comprises means (215, 270) for merging relevant parts of said responses into said data packet (125, 130) and/or into said additional information (135).

5. The processing means (100) of any one of the above claims, wherein

said synchronisation mechanism (263) is a fixed delay mechanism adapted to initiate a fixed time delay upon entry of at least part of a data packet (125, 130) into the access point.

6. The processing means (100) of claim 6, wherein

said fixed time delay is equal to or longer than the time required to process the most time consuming operation provided to access point (200) by any of the devices (205).

7. The processing means (100) of any one claims 5 or 6, wherein

said fixed time delay mechanism (263) is adapted to transmitting a triggering signal when the initiated fixed time delay has elapsed.

8. The processing means (100) of any one claims 5-7, wherein

said fixed time delay mechanism (263) comprises a shift register (263).

9. The processing means (100) of any one of claims 1-4, wherein

said synchronisation mechanism is completion driven conditional logic adapted to determine whether all relevant response FIFO stores (260) have data in the first entry.

10. The processing means (100) of any one of the above claims, wherein

said transmit connection (210) is connected to an access unit (215) of said access point (200), said access unit being adapted to receiving data processing information (300) associated with said data packet (125), to using said data processing information in creating a request (400) and to transmitting said request (400) to said device (205) on said transmit connection.

11. The processing means (100) of claim 10, wherein

said data processing information (300) comprises information related to the handling of a response (405) received from said device; and

said access unit (215) comprises an access unit FIFO store for storing said information related to the handling of a response.

12. The processing means (100) of claims 2 and 10, wherein

each transmit connection (210) is connected to an access unit (215).

13. The processing means (100) of claim 7 and 10, wherein

said fixed time delay mechanism (263) is adapted to sending said triggering signal (268) at least to said access unit (215), said access unit being adapted to fetching a response (405) in said response FIFO store(s) (260) responsive to said triggering signal.

14. The processing means (100) of any of the above claims, wherein

said access point (200) comprises a driver table (500) comprising data processing information entries and associated driver identifier entries, said access point being adapted to receiving a driver identifier (505) and to extracting, via said driver identifier, data processing information (300) from said driver table.

15. The processing means (100) of claims 2 and 14, wherein

said access point (200) comprises a driver table (500) for each of said request channels.

16. The processing means (100) of any of the above claims, wherein

said processing means (100) comprises at least one switch (220) being connected between at least one transmit connection (210) and to at least two devices (205), said switch being configurable to provide access to any one of said devices via said at least one transmit connection.

17. An integrated circuit, **characterised** by

a processing means (100) according to claim 1.

18. A computer unit **characterised** by

an integrated circuit according to claim 17.

19. A method of pipelined processing of a data packet (125) in a processing means (100) comprising a pipeline (110), said pipeline comprising at least one processing stage (120), said method being **characterised** by the following steps:

receiving (800), in an access point (200) of said pipeline, at least part of said data packet (125, 130);

storing (810) at least part of the data packet (125, 130) and any additional information (135) associated with said data packet in at least one FIFO store (245, 250) in said access point;

transmitting (820), from said access point, a request (400) to a device (205) on a transmit connection (210);

receiving, in said access point, a response (405) corresponding to said request, from said device on a receive connection (255);

storing said response in a response FIFO store (260) in said access point, said response FIFO store being connected to said device via said receive connection;

extracting the first response in said response FIFO store and the first entries in said at least one FIFO store, said first entries corresponding to the at least part of the data packet and said additional information; and

merging (835, 840), said response into the data packet and/or into the additional information associated with said data packet.

20. The method of claim 19, wherein

more than one request (400) is transmitted simultaneously from said access point (200) on more than one transmit connection (210), each transmit connection being connected to a different device (205).

21. The method of claim 19 or 20, further comprising the following step of:

initiating (815) a fixed time delay; and wherein

said step of extracting is performed responsive to the elapse of said fixed time delay.

22. The method of claim 21, wherein

a triggering signal (268) is generated when said fixed time delay has elapsed, and said step of extracting is performed responsive to said triggering signal.

23. The method of anyone of claims 19-22, said method further comprising the following step of:

extracting (805) data processing information (300) associated with said data packet (125), prior to said step of transmitting (820), said step of extracting data processing information being performed by use of an access point reference (240) in additional information (135); and wherein

said request (400) is prepared according to said data processing information; and

said step of merging (835) is performed according to said data processing information.

24. The method of claim 23, wherein

said step of extracting data processing information (805) further comprises the following steps of:

extracting, from said access point reference (240), a driver identifier (505); and

looking up said driver identifier in a driver table (500), said driver identifier being associated with data processing information (300) in said driver table.